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Name _____ Date __

Practice: For use after Lesson 8.1, Algebra 2 with Trigonometry

Algebra 2
Unit #2
WS #2

Roots and Radicals

Find the real solutions, if any, for each equation.

1. $x^2 = 49$ _____
2. $y^2 - 64 = 0$ _____
3. $3x^2 = 12$ _____
4. $c^2 - 11 = 14$ _____
5. $d^2 + 36 = 0$ _____
6. $2y^2 = -18$ _____
7. $x^3 - 27 = 0$ _____
8. $7z^3 + 13 = 13$ _____
9. $2n^2 - 1 = 31$ _____
10. $3x^3 = -3$ _____

Simplify each radical expression if it is a real number.

11. $\sqrt{81}$ _____
12. $\pm\sqrt{81}$ _____
13. $-\sqrt{81}$ _____
14. $\sqrt{0.81}$ _____
15. $\sqrt{64}$ _____
16. $-\sqrt{144}$ _____
17. $\sqrt{-4}$ _____
18. $\sqrt{-49}$ _____
19. $\sqrt[3]{8}$ _____
20. $\sqrt[3]{-8}$ _____
21. $\sqrt{9y^2}$ _____
22. $\sqrt{0.36n^6}$ _____
23. $\sqrt{a^{10}b^{14}}$ _____
24. $\sqrt{y^4z^{16}}$ _____
25. $\sqrt{100c^{32}}$ _____
26. $\sqrt{16c^2d^2}$ _____
27. $\sqrt{25a^{42}b^{44}}$ _____
28. $-\sqrt{121y^{64}z^{100}}$ _____
29. $\sqrt[3]{-27n^9}$ _____
30. $\sqrt{(y+7)^2}$ _____
31. $\sqrt{(n-5)^4}$ _____
32. $\sqrt[3]{(z+11)^3}$ _____
33. $\sqrt[3]{(d+1)^{12}}$ _____
34. $\sqrt[3]{0.000125a^6}$ _____
35. $-\sqrt{0.000001y^2z^{10}}$ _____

Applications

36. **Geometry** The perimeter of a triangle is $\sqrt[3]{64}$ cm. Express the perimeter in simplest form. _____

37. **Geometry** The length of the radius of a sphere is $\sqrt{49x^2y^6}$ in. Express the length in simplest form. _____

MIXED PRACTICE

Find the value of each expression.

38. 5^2 _____
39. 3^3 _____
40. $(-2)^5$ _____
41. $(-2y)^4$ _____
42. $(-3z^3)^3$ _____
43. $(-2x^2y)^5$ _____